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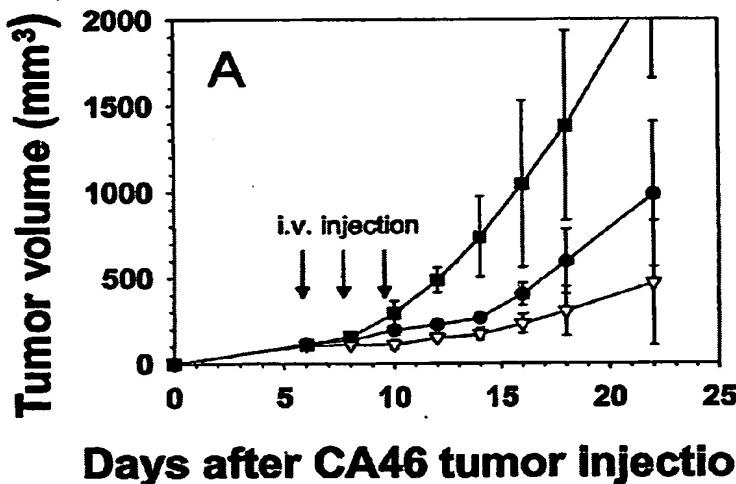
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(54) Title: MUTATED ANTI-CD22 ANTIBODIES AND IMMUNOCONJUGATES



Days after CA46 tumor injection

(57) **Abstract:** Recombinant immunotoxins are fusion proteins composed of the Fv domains of antibodies fused to bacterial or plant toxins. RFB4 (Fv)-PE38 is an immunotoxin that targets CD22 expressed on B cells and B cell malignancies. The present invention provides antibodies and antibody fragments that have improved ability to bind the CD22 antigen compared to RFB4. Immunotoxins made with the antibodies and antibody fragments of the invention have improved cytotoxicity to CD22-expressing cancer cells. Compositions that incorporate these antibodies into chimeric immunotoxin molecules that can be used in medicaments and methods for inhibiting the growth and proliferation of such cancers. Additionally, the invention provides a method of increasing the cytotoxicity of forms of *Pseudomonas exotoxin A* ("PE") with the mutation of a single amino acid, as well as compositions of such mutated PEs, nucleic acids encoding them, and methods for using the mutated PEs.